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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,632	10/13/2000	Jean-Pierre Tahon	4907/Oconalign	8441

7590 05/02/2003
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EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/689,632

Applicant(s)

TAHON ET AL.

Examiner

Sow-Fun Hon

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,5 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,5 and 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Withdrawn Rejections

1. The 35 U.S.C. 112, 2nd paragraph rejections in Paper # 5 (mailed 12/19/02) of claims 5, 7, 12 and 13 have been withdrawn due to Applicant's clarifications and amendments in Paper # 6 (filed 04/17/03).
2. The 35 U.S.C. 102(b) rejections in Paper # 5 (mailed 12/19/02) of claims 4-10, 14 have been withdrawn due to Applicant's amendment in Paper # 6 (filed 04/17/03).
3. The 35 U.S.C. 103(a) rejections in Paper # 5 (mailed 12/19/02) of claims 6-7, 11-14 have been withdrawn due to Applicant's amendment in Paper # 6 (filed 04/17/03).

New Rejections

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

5. Claims 4, 5, 7-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. In independent claims 4, 8, 12, the term "obtainable" renders the claims vague and indefinite because it implies that other methods may be used. Since the materials for the device are recited in the method, it follows that other materials may also be used. The term "obtained" should be used instead.

Art Unit: 1772

7. In claim 12, it is unclear what the compounds are which may diffuse from the substrate. Applicant is respectfully requested to clarify whether these compounds are the oxygen or water vapor recited in claim 13.

Claim Rejections - 35 USC § 103

8. Claims 4-5, 7-10, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Escher et al. in view of Kämpf et al. (US 5,286,414).

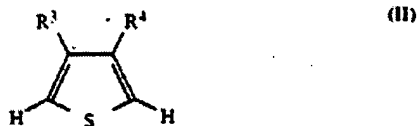
Escher et al. has a liquid crystal display where the alignment layer (orienting) is in direct electrical contact with the associated electrode (electroconductive layer). The electrically conductive polymer which comprises the alignment layer is a polythiophene (column 2, lines 1-70).

Escher et al. teaches that the electrically conductive polymer is coated onto a glass substrate provided with a transparent electrode (column 5, lines 20-50). Since the associated electrodes are discrete elements, the alignment layer will have conducting areas where it is in direct electrical contact with the associated electrode, and will have non-conducting areas in between the electrodes.

Since the electrically conductive polymer has a specific conductance of at least 10^{-5} Siemens (column 3, lines 30-40), the examiner has taken the position that the alignment layer has a surface resistivity of the claimed amount.

Escher et al. teaches that the polythiophene (column 2, lines 1-55) has the thiophene monomer formula below:

Art Unit: 1772

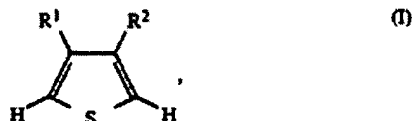


where at least one of the two radicals R^3 and R^4 is an alkoxy group and the other is optionally (C_1-C_6) alkyl or hydrogen, have already been described in DE-A 3,717,668, DE-A 3,628,895 and DE-A 3,736,114. The preparation, the stability and electrical conductivity of the various, positively doped polymers were also investigated therein.

wherein R^3 and R^4 are in the same positions of claimed $-O-R^1$ and $-O-R^2$ on the thiophene ring.

The hydrogens are where the repeat units are linked upon polymerization of the thiophene monomer. Escher et al. discloses that R^3 and R^4 have already been described in DE-A 3,717,668.

US 5,286,414 (Kämpf et al.) is the US equivalent of DE-A 3,717,668. Kämpf et al. teaches that the polythiophene has the thiophene monomer formula below:



in which

R^1 denotes a C_1-C_{12} alkoxy group or $-O(CH_2C-H_2O)_nCH_3$ where $n=1$ to 4 and

R^2 denotes a hydrogen atom, a C_1-C_{12} alkyl group, a C_1-C_{12} -alkoxy group, or $-O(CH_2CH_2O)_nCH_3$ where $n=1$ to 4, or

R^1 together with R^2 represents $-O(CH_2)_m-CH_2-$ or $-O(CH_2)_m-O-$, in which m is 1 to 12.

wherein R^1 and R^2 occupy the same positions of claimed $-O-R^1$ and $-O-R^2$ on the thiophene ring.

Kämpf et al. teaches that R^1 and R^2 together represent $-O-(CH_2)_m-O-$ where m is 1 to 12

(column 2, lines 30-55), which encompasses the claimed limitation that R^1 and R^2 together represent a C_1-C_4 alkylene group where m is 1 to 4.

Art Unit: 1772

Since Escher et al. discloses that Kämpf et al. describes the claimed polythiophene, it would have been obvious to one of ordinary skill in the art to have used the polythiophene described by Kämpf et al. as an alternate to the polythiophene specified in the invention of Escher et al. in order to obtain a liquid crystal display with the desired conductive properties.

9. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Escher et al. in view of Kämpf et al. as applied to claims 4-5, 7-10, 14 above, and further in view of Eguchi.

Escher et al. has been discussed above and teaches the liquid crystal display with the polythiophene alignment layer. Escher et al. however fails to teach an adhesion-improving anchor layer which has barrier properties with regard to compounds which may diffuse from the substrate, and to disclose that the electroconductive layer (electrode) is made out of indium tin oxide.

Eguchi teaches a liquid crystal display where the alignment layer may be provided with an electroconductivity selectively at parts above the electrode so as to provide an improvement in prevention of crosstalk between pixels (abstract). The substrate is provided with an electroconductive barrier (protective) layer (film), and also an alignment layer (film) comprising an alignment material and a polymeric electroconductive compound. The polymeric electroconductive compound in the alignment layer is disposed selectively on the part having the electrode (column 3, lines 40-60) thus forming a pattern of conducting areas on the parts above the electrode, and leaving the other areas of the alignment layer non-conducting. The transparent electrodes are of indium tin oxide (column 5, lines 10-35). The polymeric electroconductive compound is polythiophene and derivatives thereof (column 5, lines 55-68).

Art Unit: 1772

Eguchi teaches that the barrier layer (protective film) is made of various metal oxides such as WO₃, TiO₂, ZnO, CdO (column 5, lines 35-45). Since the substrate is glass which is silica or SiO_x, and the electroconductive layer (electrode) is indium tin oxide, and there is no mention of an adhesive used, it is the examiner's position that the oxide barrier layer described by Eguchi has adhesion-improving properties to adhere or anchor the glass substrate to the electroconductive layer. Furthermore, since the barrier layer is a physical barrier and is composed of metal oxides used in ceramics, it is the examiner's position that it acts to prevent diffusion of compounds from and through the substrate, including oxygen and water vapor.

Response to Arguments

10. Applicant's arguments with respect to claims 4, 5, 7-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 1772

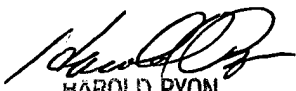
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (703)308-3265. The examiner can normally be reached Monday to Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (703)308-4251. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

SH
Sow-Fun Hon
04/28/03


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

4/30/03